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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------|------------------|
| 10/605,889 | 11/04/2003 | Michael P. Belyansky | FIS920030286US1 | 2888 |
| 32074 | 7590 | 08/09/2005 | EXAMINER | |
| INTERNATIONAL BUSINESS MACHINES CORPORATION | | | PHAM, LONG | |
| DEPT. 18G | | | ART UNIT | PAPER NUMBER |
| BLDG. 300-482 | | | 2814 | |
| 2070 ROUTE 52 | | | DATE MAILED: 08/09/2005 | |
| HOPEWELL JUNCTION, NY 12533 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/605,889 | BELYANSKY ET AL. |
| | Examiner | Art Unit |
| | Long Pham | 2814 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) 8-20 is/are allowed.
- 6) Claim(s) 1-7 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|--|
| <ol style="list-style-type: none"> 1)<input type="checkbox"/> Notice of References Cited (PTO-892) 2)<input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3)<input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>05/19/05</u>. | <ol style="list-style-type: none"> 4)<input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5)<input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6)<input type="checkbox"/> Other: _____. |
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DETAILED ACTION

Rejections and/or objections as previously applied

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1, 2, 3, 4, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (AAPA) of this application in combination with Harms et al. (US 4,994,141), and Ajmeria et al. (US 2003/0010972).

With respect to claims 1 and 4, AAPA teaches a method of relaxing a stress present in a film contacting a base layer by reducing the stress of the film.

See the Background of the Invention of this application.

However, AAPA fails to teach the reduction of stress is done by oxidizing the film by applying heat.

Harms et al. teach reducing stress of a film by oxidation by applying heat.

See col. 3, lines 1-25.

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to reduce the stress of the film as taught by Harms et al. in the method of AAPA because the reduction method of Harms et al. can be reproducible. See col. 3, lines 1-25.

Further with respect to claims 1 and 4, Harms et al. teach that oxidation is done by applying heat but fail to teach that oxidation is done by using heat and atomic oxygen.

Ajmeria et al. teach oxidizing by applying heat and atomic oxygen to reduce the thermal budget of oxidation process. See [0014].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to use heat and atomic oxygen to produce oxidation in the process of AAPA and Harms et al. to achieve the above advantage.

With respect to claim 2, AAPA further teaches the stress is either tensile or compressive. See the Background of the Invention of this application.

With respect to claim 3, Ajmeria et al. fail to teach that the atomic oxygen is generated by high density plasma.

However, the generation of atomic oxygen by high density plasma is well-known.

Further with respect to claim 3, it is submitted that the temperature range for the generation of atomic oxygen is optimizable.

With respect to claims 5 and 7, AAPA further teaches selectively reducing the stress of the film and Harms et al. teaches reduction by oxidation.

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to selectively oxidize the film to selectively reduce the stress of the film to obtain advantages as described in the Background of this specification.

With respect to claim 6, AAPA and Harms et al. fail to teach annealing the oxidized film.

However, the annealing of a film is well-known to one skilled in the art of making semiconductor devices.

Further, since AAPA in combination with Harms et al. teach the claimed oxidized film, additional heating of the film would not change the stress of the film.

Response to Arguments

2. Applicant's arguments filed 05/19/05 have been fully considered but they are not persuasive. See below.

In response to the applicant's arguments in the bottom paragraph on page 7 of the response dated 05/19/05, it is submitted that the filing date of US publication 2003/0010972 of 07/13/01 is prior to the filing date of this present application of 11/04/03 and hence is qualified as prior art under USC 103.

In response to the applicant's arguments in the paragraphs on page 8 of the response dated 05/19/05, it is submitted that line 5 of [0007] of the Background of the Invention of this application teaches altering (reducing or increasing) stress of a layer contacting a base layer. Further, it is submitted that reducing stress means relaxing stress.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on M-F, 7:30AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Long Pham
Primary Examiner

Art Unit 2814

LP